

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS PACIFIC AIR FORCES
APO SAN FRANCISCO 96553



REPLY TO
ATTN OF SGAM (Lt Col Lund, 4499207)

28 JAN 1977

SUBJECT Support Requirements for Enewetak Clinic and Lojwa Medical Aid Station

TO Pacific Support Division
Field Command
Defense Nuclear Agency
Hickam AFB HI 96553

1. FCDNA CONPLAN 1-76, revised 15 Sep 76, tasks PACAF to provide medical services in support of a DNA task force to clean up debris and radioactivity on Enewetak Atoll. To provide this support, a clinic will be established in the 2,000 sq ft space offered in Building 603 on Enewetak Island and a medical aid station on Lojwa Island. The USAF Clinic has been tasked with administration of this project.

2. The following civil engineering, communication, and materiel support is requested to provide adequate medical facilities on Enewetak Atoll. It is our understanding the cost of providing this support will not be billed to the USAF Medical Service.

a. Floor Plan for the Enewetak Clinic and Lojwa Medical Aid Station. Partition the 2,000 sq ft area of Building 603 on Enewetak allotted for clinic use into patient care areas as indicated in the attached sketch. (See Atch 1). A building will have to be provided for the Lojwa medical aid station. This building should be partitioned and outfitted in accordance with the floor plan as shown in Atch 2.

b. Floor. Existing asphalt tile floor in Building 603 is adequate except that broken and chipped tile should be replaced. Our concern is that the floor can be kept clean, is free of cracks or chipped areas which will trap dirt, and that it can be washed frequently with a disinfectant without becoming damaged. For the Lojwa medical aid station, an asphalt tile floor over a wood sub-floor is acceptable. A drain line will have to be installed beneath the floor in the Enewetak Clinic dental treatment room.



c. Partitions, Walls and Ceilings. Dry wall partitions are recommended. Finish on walls should be washable. Light pastel colors are acceptable except that light yellow should be avoided in the doctor's and technician's office, the emergency room and the ward. White is recommended for the emergency room. Specifications for lead lining the x-ray area is included in Atch 4. The sterilizer partition should be insulated to keep heat generated by sterilizer from moving into the emergency room.

d. Plumbing and Sinks. Install and plumb sinks in areas indicated on the attached sketches of the clinic and aid station floor plan. Sinks in the emergency rooms should be equipped with knee operated faucets and plaster traps. Faucets with threads for a hose connection should be provided on the exterior wall near the emergency room entrance at both the clinic and aid station.

e. Doors. Double entry doors are not required but are satisfactory if existing. A 3' 10" single door at entry penetrations is adequate. A minimum door width of 40" is required to move x-ray room equipment in and out of the building. The door to the sterilizer room should be vented.

f. Electrical Power Requirements.

(1) Electrical requirements for the x-ray, dental operating unit and sterilizer are shown in the attachment describing these items. (See Atch 4).

(2) Wall outlet receptacles should be 115V AC, 60Hz, 15Amp single-phase duplex outlets--no more than two on any branch circuit. Locations for electrical outlets are shown on the floor plan for the Lojwa medical aid station and in the detailed sketches of the separate rooms in the Enewetak Clinic. (See Atchs 2, 4 & 5). Location of electrical outlets in the administrative and waiting areas of the Enewetak Clinic are shown in Atch 1.

g. Emergency Electrical Power. The clinic should be wired to permit hook-up of an alternative source of electrical power. A stand-by generator of sufficient size to operate the x-ray and emergency equipment and light exit signs must be made available in the event the primary electrical power supply fails.

h. Lighting. Lighting is required in accordance with standards as listed in AFR 88-50. Requirements for the various patient care and service areas have been extracted from the regulation and are included as Atch 3. Include sufficient lighting in the rooms to meet these standards.

Storage battery powered emergency lights should be provided in the patient care and service areas to augment emergency lighting and for continuity during the interim of switching from normal to emergency electrical power. Electrical outlets must be appropriately placed to provide power for charging these battery powered lights.

i. Air Conditioning and Exhaust Fans. An external air-conditioner of sufficient size to cool the 2,000 sq ft clinic area is required for the Enewetak Clinic. We estimate a maximum of 28 people will be in the clinic at any one time. Exhaust fans should be included on the outside walls in the laboratory, sterilizer, x-ray dark room and toilet areas to vent the excess heat and odors. The exhaust fan to the dark room must be light tight. Cool air should be ducted into each of the rooms through ceiling duct work. At the Lojwa medical aid station, window air-conditioners will be adequate if a central unit is not available.

j. Decontamination. Decontamination of injured personnel would be accomplished at the established decontamination sites. Operating procedures will have to be developed at Enewetak which prescribe handling and movement procedures for patients who cannot be completely decontaminated. Depending on the procedures developed, an additional facility may be required to hold and treat these patients.

k. Veterinary Services Work Space. A work area to include a desk, chair and adequate lighting should be provided for the veterinary technician in the commissary cold storage area.

l. Telephones.

(1) Enewetak - two lines are required. Line one for administrative use on camp, preferably with capability of contact with USAF Clinic Hickam, Hickam AFB, Hawaii. Line two should be designated for "emergencies" with an instrument in the administrative area. Line one with seven instruments should be keyed with an intercom to the dental office, pharmacy, laboratory, doctor's office, emergency room, holding area, and administrative area.

(2) Lojwa - one line with contact capability to Enewetak Clinic. Two instruments, one in office and one near radio in emergency room with headset and 20 feet coil cord.

m. Radios.

(1) Enewetak - locate base station between center pillars (see overall sketch) with two portables.

(2) Lojwa - locate base station in emergency room next to hall with two portables.

(3) Antennas should be suitably installed.

n. Dental Air Compressor. To be Air Force furnished and installed outside of clinic area near DTR (Dental Treatment Room). A cement platform and cover should be provided to protect the compressor from the elements. As an alternative, the compressor could be placed in enclosed, un-air conditioned area adjacent to the dental treatment room. Electrical requirements for the compressor are: 115V, 60Hz, single phase, 1840 watts, 1 H.P. motor. See attachment 4 for demensions and skid pallet size.

o. Dental Treatment Room, Radiology Area Equipment and Sterilizer Installation Instructions. Atch 4 details the dimensions, electrical requirements and installation diagrams for equipment located in this area.

p. Electrical Outlets, Work Counters, Shelving, Sinks and Cabinetry Detail. Enewetak Clinic electrical outlet, work counter, shelving placement, and sink locations for the physician's office, technician's office, pharmacy, emergency room, laboratory, 4-bed holding area, toilet and storage area are included in Atch 5. Sink locations are also shown in smaller detail in Atchs 1 and 2. Electrical outlet, sink, counter and shelving requirements for the Lojwa medical aid station are shown in Atch 2.

q. Furniture and Administrative Equipment. Following furniture is requested. If available at site, USAF Clinic Hickam should be advised.

	<u>Enewetak</u>	<u>Lojwa</u>
(1) Desks, standard size, 30" x 60"	2	1
(2) Desks, small, approximately 30" x 45"	4	1

	<u>Enewetak</u>	<u>Lojwa</u>
(3) Chairs, rotary w/arms	5	2
(4) Chairs, rotary without arms	1	0
(5) Chairs, straight (side chair)	9	2
(6) Waiting room furniture seating space	10	4
(7) Refrigerators, 12 cu ft, w/2 cu ft freezer	3	2



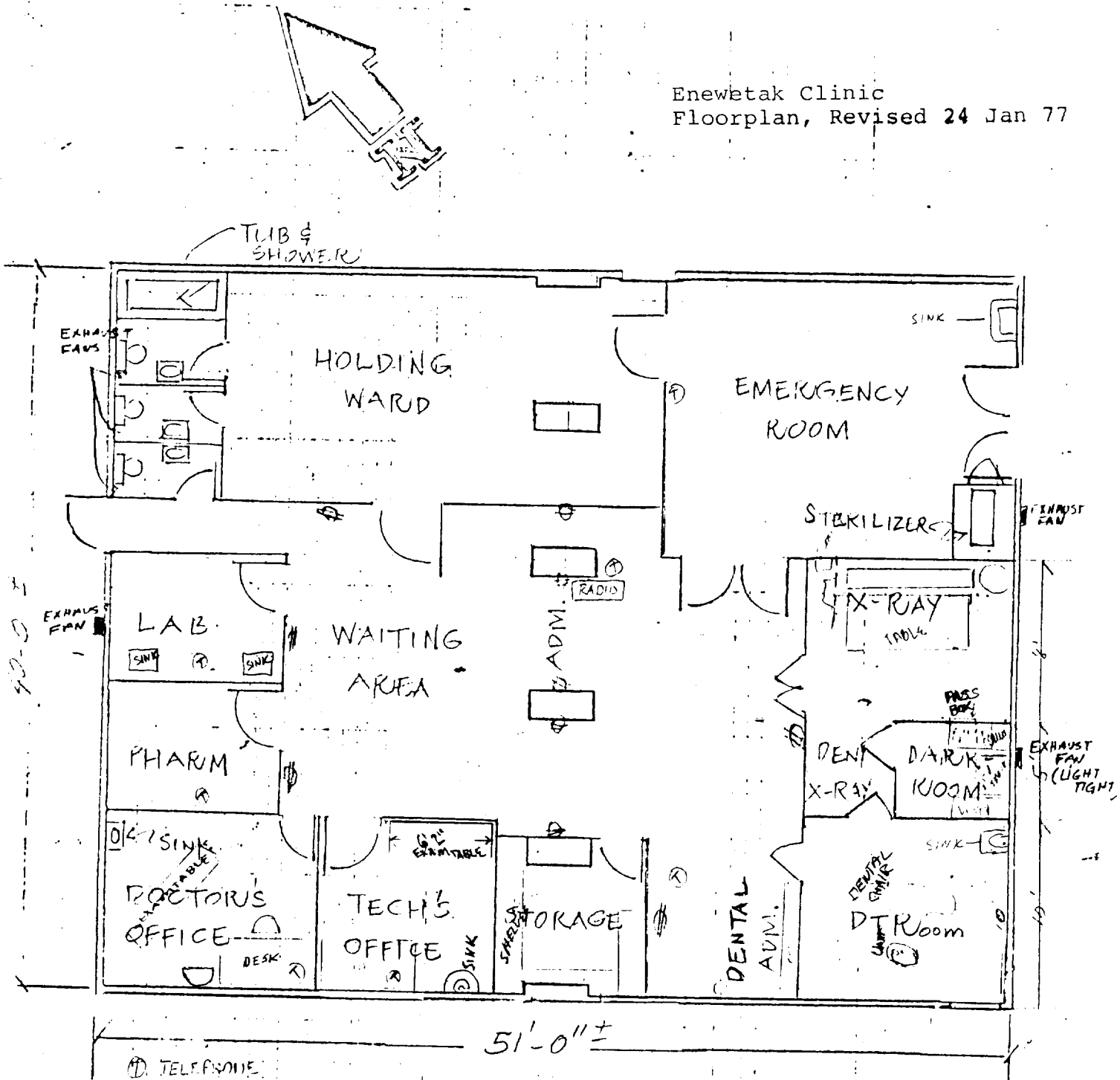
JACK C. MCPHEE, Colonel, USAF, MSC
Director, Medical Admin Services
Office of the Command Surgeon

5 Atch

1. Sketch of Enewetak
Clinic Floor Plan
2. Sketch of Lojwa Aid
Stn Floor Plan
3. Lighting Stds - Patient
Care Areas
4. Enewetak - Rqmts for
Dental & Radiology Dept
5. Enewetak - Rqmts for
Drs & Tech Office, Pharmacy,
Lab, ER, Toilets, 4-Bed
Holding Ward & Storage

Cy to: HQ USAF/SGXO
HFO/WR
USAF Clinic Hickam/SGA
HQ PACAF/XPPF

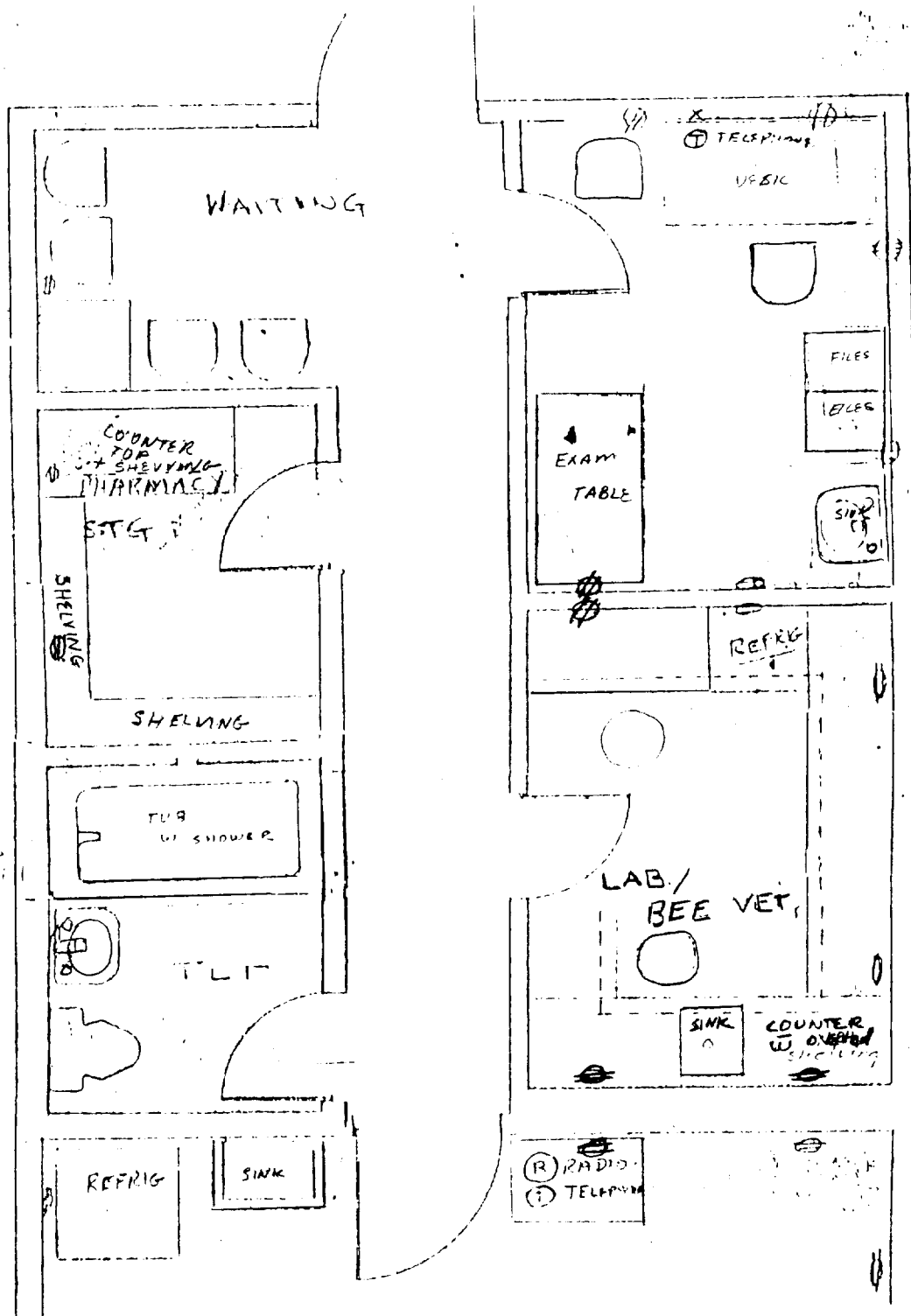
Enewetak Clinic
Floorplan, Revised 24 Jan 77



BLDG. 603
PORTION PROPOSED
FOR DISPENSARY
SCALE: 1/8" = 1'0"

(6)
ARCH #1

32



LIGHTING STANDARDS

AFR 88-50 (Revised)

	<u>Footcandles</u> (Maintained at Working Level)
Corridors	30
Darkroom	10
DTR	100
Dr/Exam	100
Emergency Room	100
Holding Room	30
Lobby/Waiting	30
Toilets	30
Administrative	70
Exits at door	10
X-Ray Room	0-50 Variable
Laboratory	100
Pharmacy/Dispensing	100
Storage	20

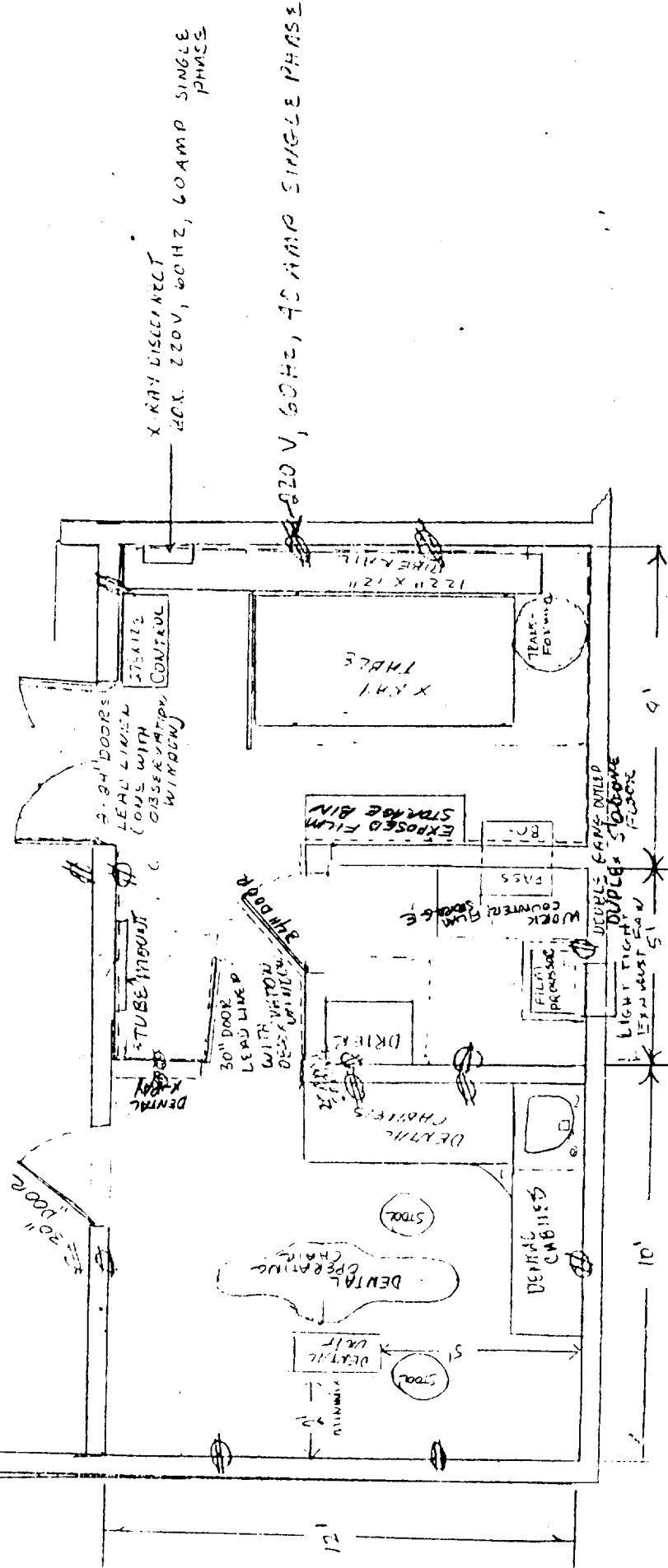
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APP #3

REQUIREMENTS FOR DENTAL & RADIOLOGY DEPARTMENTS

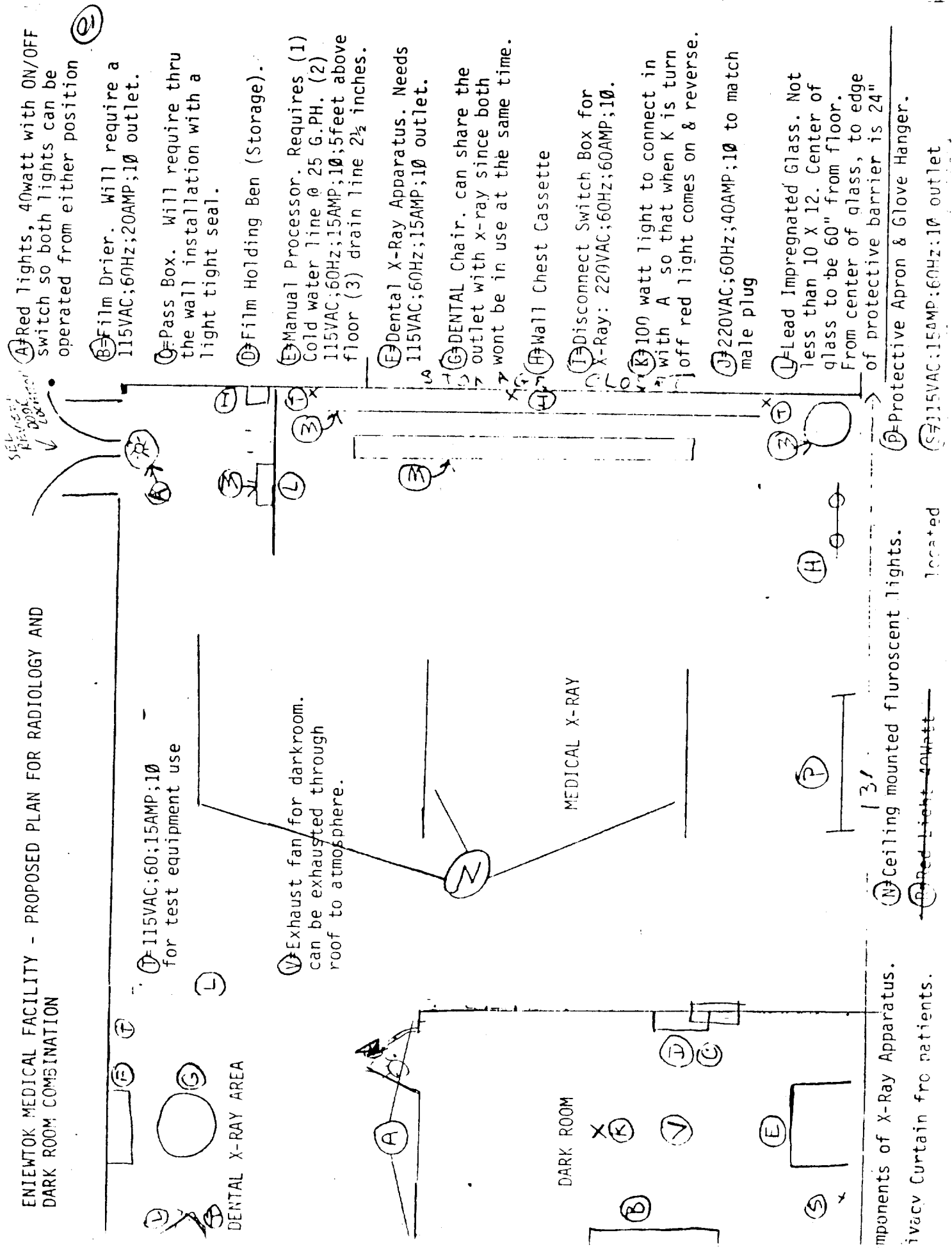
SCALE 1/4" = 1 FOOT (Revision #1)

ATCH #4



(b)

ENIEWTOK MEDICAL FACILITY - PROPOSED PLAN FOR RADIOLOGY AND DARK ROOM COMBINATION



FOR ITEMS A,B,C,D
SEE ATTCH PLANS

- (A) WASTE LINE
- (B) WATER LINE
- (C) ELECTRIC LINE
- (D) AIR SUPPLY LINE
- (E) SINK W/HOT & COLD W
- (F) DENTAL CHAIR
- (G) 115VAC, 60HZ, 15AMPS, SINGLE PHASE, 5 FEET ABOVE FLOOR (DUPLEX'S)
- (H) 115VAC, 60HZ, 20AMPS SINGLE PHASE, SINGLE OUTLET.
- (I) CEILING LIGHTS - 3 TUBE 4 FEET FROM EACH END FOR LIGHTING.
- (J) LIGHT SWITCH

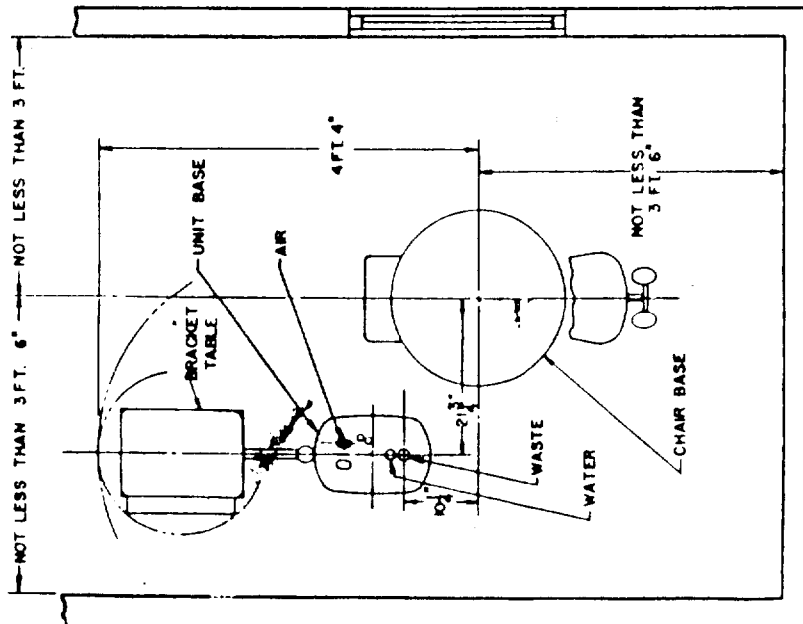
A FULL SIZE UNIT TEMPL.
FOR INSTALLATION WITH
COMPLETE SPECIFICATION
IS AVAILABLE FROM USAF
CLINIC-HICKAM/SGLM.

AN ALTERNATE METHOD IS INCLUDED IN THIS PACKAGE IN CASE THE PREFERRED METHOD CANNOT BE DONE.

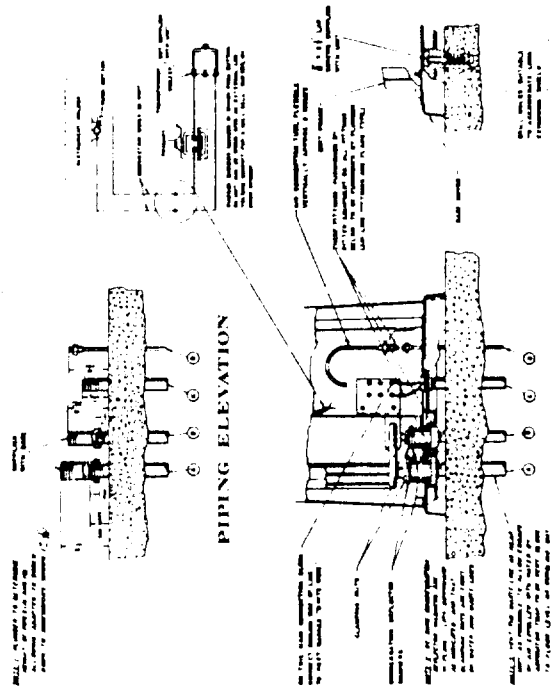
OFFICE PLAN

1" = 1 FOOT

FLOOR PLAN FOR TYPICAL INSTALLATION



SUPPLY AND WASTE SPECIFICATIONS, CONNECTION AND MOUNTING DATA



WASTE LINE - Use $\frac{1}{2}$ " pipe from base to trap, and not less than $\frac{1}{4}$ " pipe from the trap to the down pipe. Place trap in line and vent to conform with local plumbing regulations. (See Note 3 on illustration.)

WATER LINE - Use $\frac{1}{2}$ " pipe. If the pressure exceeds 50 pounds, install a reducing valve in the line. (Cash Acme, Type E; Mueller 11-4001; Watts, 135) or equivalent. Minimum pressure 25 psi.

NOTE - A volume of approx. 65 gal. per hour at 40 psi is required for operation of the Aspirator on the flush supply. Piping larger than $\frac{1}{2}$ " will be necessary for multiple unit installations.

ELECTRIC SUPPLY LINE - $\frac{1}{4}$ " rigid or flexible conduit—No. 14 wire. Fuse circuit for 15 amps. Install according to local electrical code.

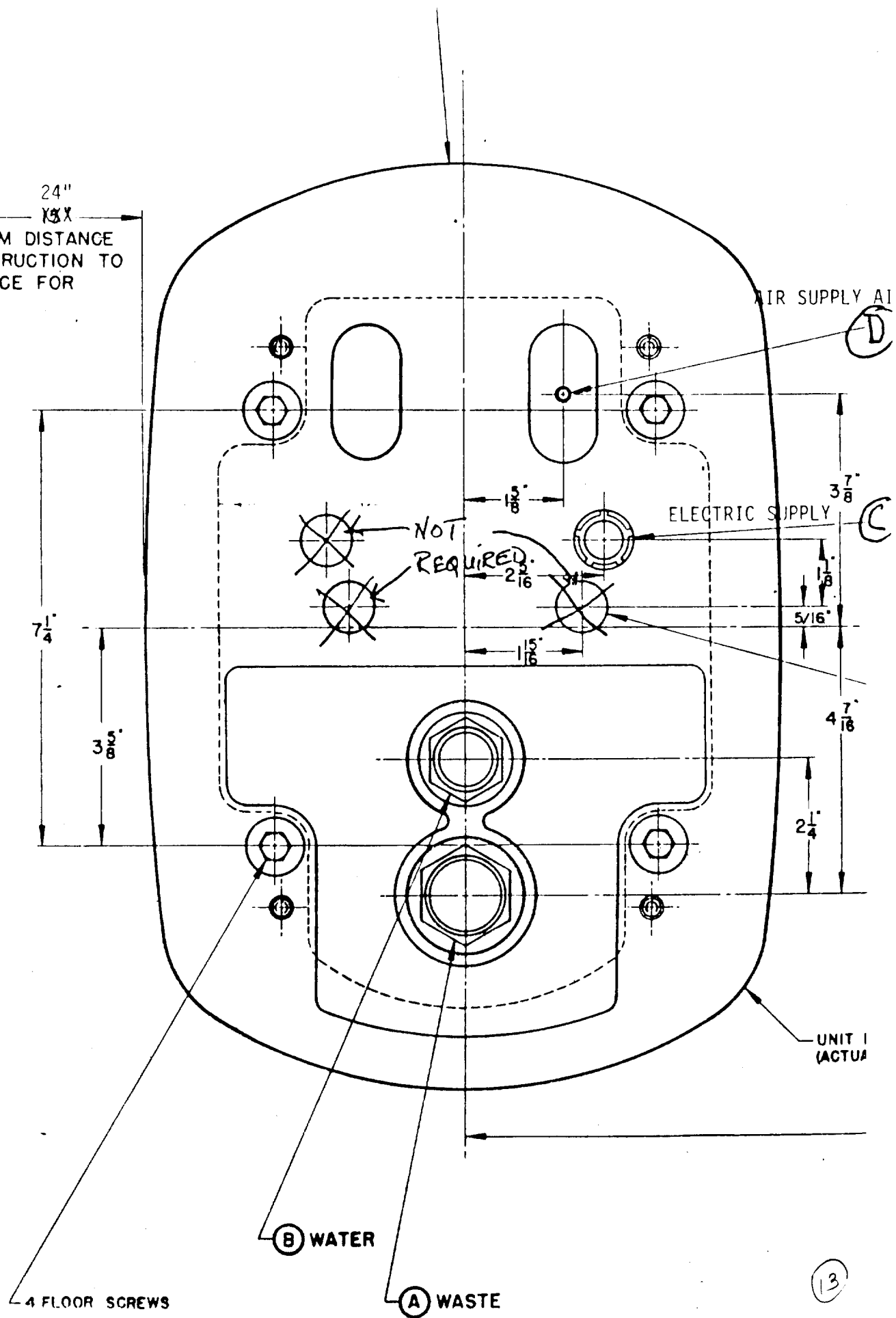
AIR LINE - Copper tubing $\frac{1}{4}$ " (minimum) outside diameter. Air pressure must be 20 psi minimum to 50 psi maximum at unit connection.

IMPORTANT

After installing piping, fill in space in floor around pipes, and concrete to prevent moisture from entering pedestal and causing rust.

Flush out completed water line thoroughly to remove chips before attaching pedestal to base.

24"
X 3 X
MINIMUM DISTANCE
FROM OBSTRUCTION TO
ALLOW SPACE FOR
SERVICING



POWER REQUIREMENTS

X-RAY Disconnect

For proper operation of this x-ray unit at its full rated capacity of 100 ma at 100 kvp, the power supply must be within the rated voltage and frequency range and must be of sufficiently good regulation that the voltage drop under load does not exceed specified limits. The various factors which must be considered in the selection of power supply are discussed in paragraphs following:

Voltage and Frequency:-

This equipment is designed to operate from power lines which will deliver:

190 to 250 volts at 50-cy. or 60-cy.,

To permit operation of the unit at full rated output, this power supply must meet the requirements of the following paragraph. If it does not, the maximum output demand should be reduced.

Voltage Drop:-

Whenever a load is thrown on a power supply, a voltage drop takes place, the magnitude of which is a function of the regulation of the power supply. It is convenient to measure the ability of the power supply to properly supply the full load demand of the x-ray machine by measuring the voltage drop which takes place when the unit is operated at 50 ma, 80 kvp. At this load, the permissible exposure time is sufficiently long to permit accurate reading of the control voltmeter.

To determine the adequacy of a given power supply, the x-ray unit must be installed and tested as covered in paragraphs 7 through 10 of the Installation Section and in paragraphs 7 and 8 of the Testing and Adjustment Section.

Recommended Power Supply:-

If a power supply is to be installed to meet the requirements of the x-ray unit, the following is recommended. Such power supply will provide for operation of this x-ray unit under Line 1 and Line 2 conditions.

Power Transformer	10 kva
Line Safety Switch, double pole	250-v, 60-amp
Line Safety Fuses	250-v, 60 amp

DISTANCE FROM POWER TRANSFORMER TO LINE SWITCH

WIRE SIZES

Line Voltage of 190 to 250:

Feet	Meters	AWG	Wire Diameter	
			Inches	Millimeters
0-50	0-15	#6	.15	4.0
51-150	15.1-46	#2	.25	6.5
151-200	46.1-61	#1	.30	7.5

DISTANCE FROM POWER TRANSFORMER TO LINE SWITCH		WIRE SIZES		
		AWG	Wire Diameter Inches	Diameter Millimeters
For Line Voltage of 95 to 125:				
<u>Feet</u>	<u>Meters</u>			
0-50	0-15	#3	.25	6.0
51-150	15.1-46	#0	.35	9.0
151-200	46.1-61	#000	.40	10.5

Deviation from the Recommended Power Supply:-

The objective of the recommended power supply is to deliver at the line terminals of the x-ray machine sufficient power for proper operation. The maximum rated demand of the unit is 10 KVA at 90% power factor. Any combination of generating equipment, power supply and feed lines which will deliver this power with a voltage change between load and no load of not more than 9% or preferably 6%, may be considered adequate.

IMPORTANT-- Effect of frequency change

While this equipment is designed to operate at either 50-cycles or 60-cycles, the x-ray timer is driven by a synchronous motor the speed of which is proportional to the frequency. The timer dial calibration is correct only at 60-cycles. At 50-cycles the timer runs at 5/6 the speed of 60-cycle operation, hence actual timing is 6/5 or 1.2 times that shown on the dial. Proper recognition must be given this condition when setting up technics and utilizing x-ray tube ratings. Disregard of the correction factor may result in over exposed films or an overloaded tube. See Operation Section for details.

SUMMATION OF WORK REQUIRED FOR ENIEWTOK DENTAL, X-RAY, & DARKROOM

1. Permanent walls and partions for Dental Clinic
2. Installation of Dental Unit Template base with appropriate services
3. Installation of electrical, water, waste, and lighting for Dental Clinic
4. Installation of permanent walls and partions for X-Ray and Darkroom
5. Wall and protective barriers will have to be leadlined with 1/16 inch equivalent to the at least the 7 foot height. Protective barriers will have to have leadlined glass observations windows. Glass is available from USAF Clinic-Hickam/S
6. Darkroom will have to have a cold water line, drain line of 2½" & a 115VAC; 60Hz; 15AMP; 1Ø outlet 5 feet above floor.
7. Darkroom will have to have the room air exhausted to atmosphere in order to keep the fumes from the chemicals from building up and also for air circulation.
8. Wall between darkroom and x-ray will require a pass box with a light tight seal
9. Darkroom will require a 40watt red light at each corner into dental & x-ray that ties in with the 100 watt light in the darkroom so that when one is turned off the other one comes on i.e.; red on white off, white on red off. This shows the dark room is occupied and do not enter.
10. X-RAY will require an electrical disconnect box rated for 220VAC; 60Hz; 60AMPS; 1Ø with at least 5% regulation. See attached list for specific wire size and also a 10KVA Distribution Transformer.
11. X-Ray for portable use will require a 220VAC; 60Hz; 40AMP; 1Ø recepticle as indicated on print to match this plug:
12. X-Ray will require ceiling mounted florescent lights as indicated on print
13. X-Ray will require several 115VAC; 60Hz; 15AMP; 1Ø duplex outlets as indicated for equipment and testequipment use
14. All doors will have to be at least 30" wide to allow for passage of equipment. (except dark room which will have to be 34").
15. X-Ray will require a double door, leadlined, each panel at least 24" wide.
16. X-Ray will need an exposed film storage bin to store permanent x-rays for file. This can be a plywood construction against the wall with 4 compartments, each compartment 10"W X 18"H X 15"D.

PROCESSOR, INSTALLATION INSTRUCTIONS

1.3 Procedure

- 1.3.1 The installation does not require the services of a refrigeration service man. Only plumbing connections are required. A 110-115 V, 60 cycle AC single phase receptacle is required for electric current. Provide for 15 amp service.
- 1.3.2 To take off front access panel remove 7 screws on front.
- 1.3.3 Connect city water to connection "A" with a shut off valve and a 100 mesh strainer between this shut off valve and connection "A". This is a $\frac{1}{2}$ " female pipe connection; no smaller than $\frac{1}{2}$ " pipe should be used.
- 1.3.4 Connect $1\frac{1}{4}$ " drain pipe to connection "B" which is the main overflow and drain assembly and carries all waste from the tank and refrigerating system; no smaller than $1\frac{1}{4}$ " pipe should be used.
- 1.3.5 Plug in line cord to 115V 60 cycle AC 15 amp service.
- 1.3.6 All other connections are made and tested at the factory.
- 1.3.7 See Dwg. T-17-1 for location of connections.

STERILIZER

INSTALLATION

INSTRUCTIONS

1. Although not actual dimensions have been give for this piece of equipment, all that is needed is for a shelf capable of supporting 60 pounds be built and supported on the wall as indicated, approximately 4½' above floor and then follow the detailed instructions and drawings provided.

2. Keep in mind that ceiling height were the still is to mount is of prime consideration. Still itself is approximately 3½ feet long so allow for ceiling clearance.

STERILIZER INSTRUCTION PLANN

1. Small blue print information is provided for a steam sterilizer which can be used for installation of the electric. All one has to do is substitute an incoming tempered (hot) water line in place of the incoming steam line shown, then provide a standard clothes dryer connection (female) for the sterilizer. 220VAC;60Hz;60AMP;1Ø.

2. The other power required is a 115VAC;60Hz;15AMP;1Ø power to run the timer and automatic cycle control this plug must be 6' above floor level.

3. Planned location for this sterilizer is in the emergency room and will be required to be partitioned off. This will also require a drain and vent to atmosphere.

4. Acomplete actual size layout for this sterilizer is available from USAF Clinic-Hickam/SGLM when ready for installation.

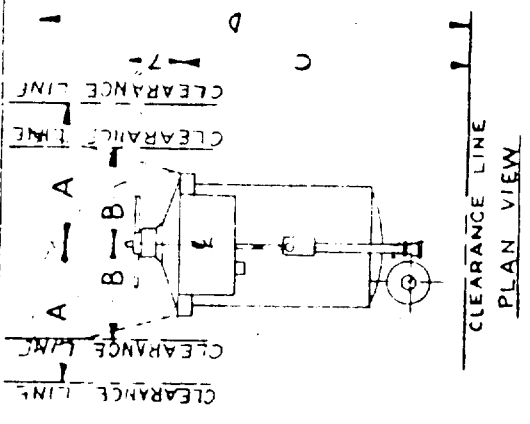
5. This room will require an exhaust fan to the outside to reduce the level of heat.

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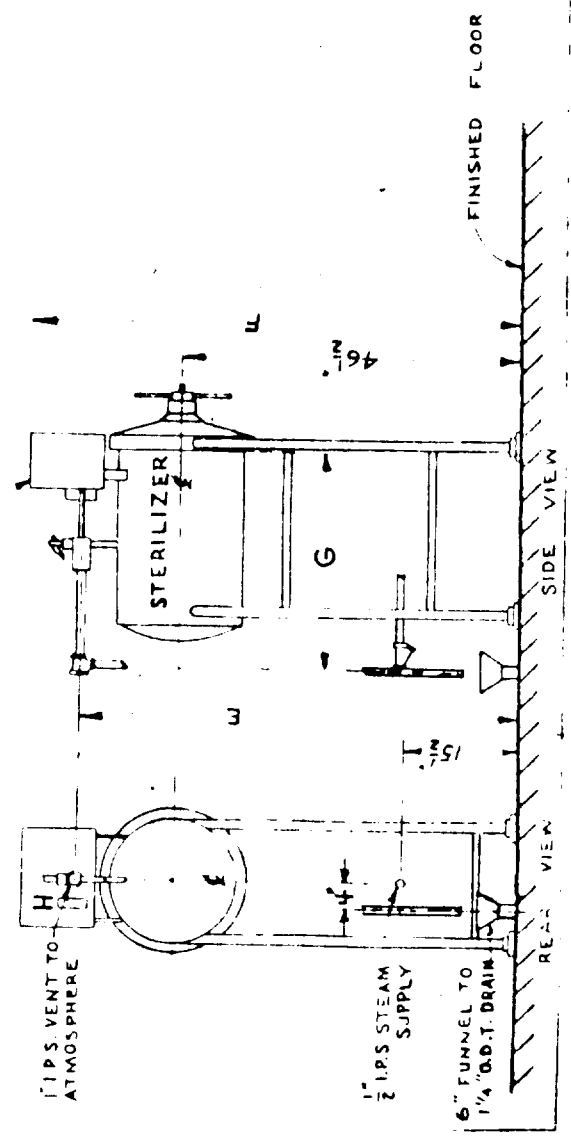
MODEL	SIZE	A	B	C	D	E	F	G
1624	16x24	20	13	37	58	61	69	32
2036	20x36	24	15	49	74	63	71	44

H- CONDUIT BOX, CONNECT WIRES
TO 115 VOLT, 60 CY, AC SUPPLY.

ROUGHING - IN
CYLINDRICAL MODELS
DIRECT STEAM
FREE STANDING
AUTOMATIC CONTROL



AUTOMATIC CONTROL BOX



DESIGNED BY E. J. MARTINO
E. J. MARTINO 9/22/63
MFG. CORP.
37600
ROUGHING-IN CYLINDRICAL
MODEL S, DIRECT STEAM,
FREE STANDING, AUTO CONTROL 600,023

COMPRESSO - DRI

PHYSICAL & ELECTRICAL DATA

Model No.	H.P.	SCFM @ 90 psig*	Pressure Range (PSIG)	Tank Size (gallons)	Compressor Speed (RPM)	Standard Voltage 60 cycle AC
50 or 50,000	1	4.2	80-100	30	540	115 or 230 single phase
52 or 52,000	3	13	80-100	80	630	208 or 230-460 three phase
54 or 54,000	5	22.2	80-110	80	650	208 or 230-460 three phase
56 or 56,000	7½	34	80-110	120	700	208 or 230-460 three phase
58 or 58,000	10	49.6	80-110	200	600	208 or 230-460 three phase

*Maximum delivery in standard cubic feet per minute. Use this figure for sizing intermittent load. For continuous demand, use 50% of the above figures. For dental use, consult factory.

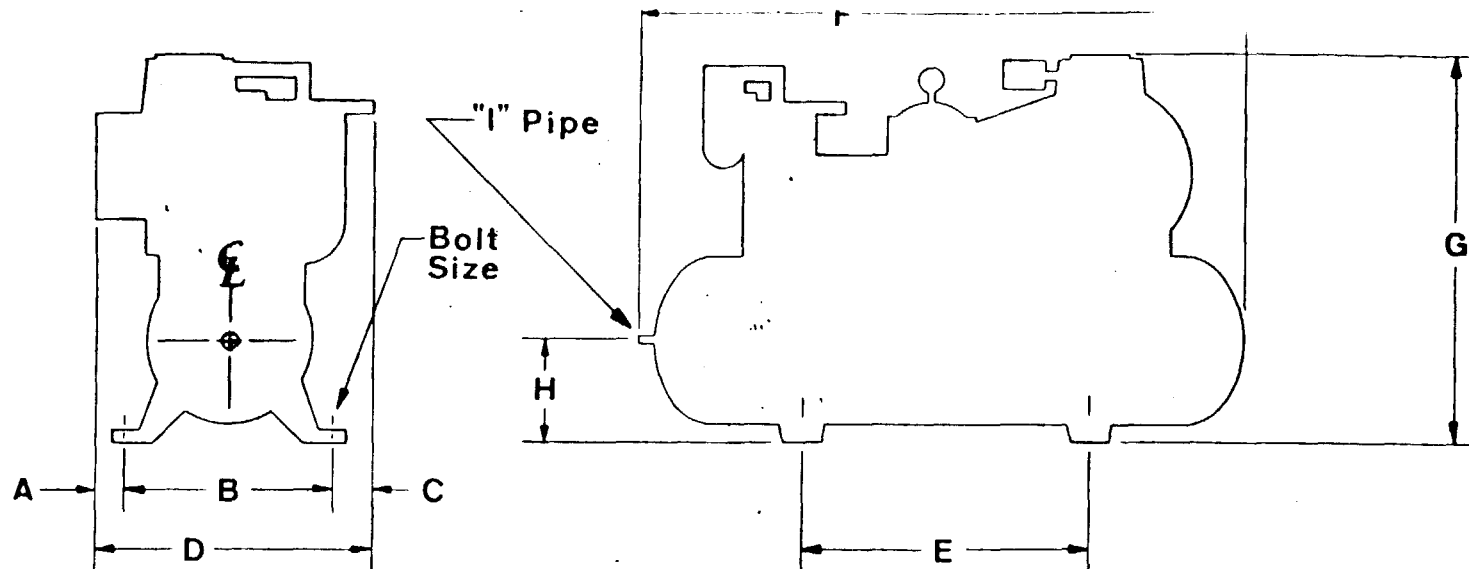


air techniques incorporated

2020 JERICHO TURNPIKE, NEW HYDE PARK, NEW YORK 11040
telephone: 212/FI7-7100 • 516/PR5-1645

Bulletin PER 2

(22)



Model Number	HP	A	B	C	D	E	F	G*	H	I	Shipping Weight	Bolt Size
* 50 or 50,000	1	2½	14	7½	24	21¾	42	36½	9	½	650	½
52 or 52,000	3	3	19½	11½	34	43½	67	49½	12½	½	1100	½
54 or 54,000	5	3	19½	11½	34	43½	67	54½	12½	½	1300	½
56 or 56,000	7½	4	22¼	13	40	41	77	58½	13¾	1	1850	⅝
58 or 58,000	10	2	30	11	43	41	78	71½	17½	1	2400	⅝

Dimensions are in inches, weights are in pounds

G — Height, includes skid

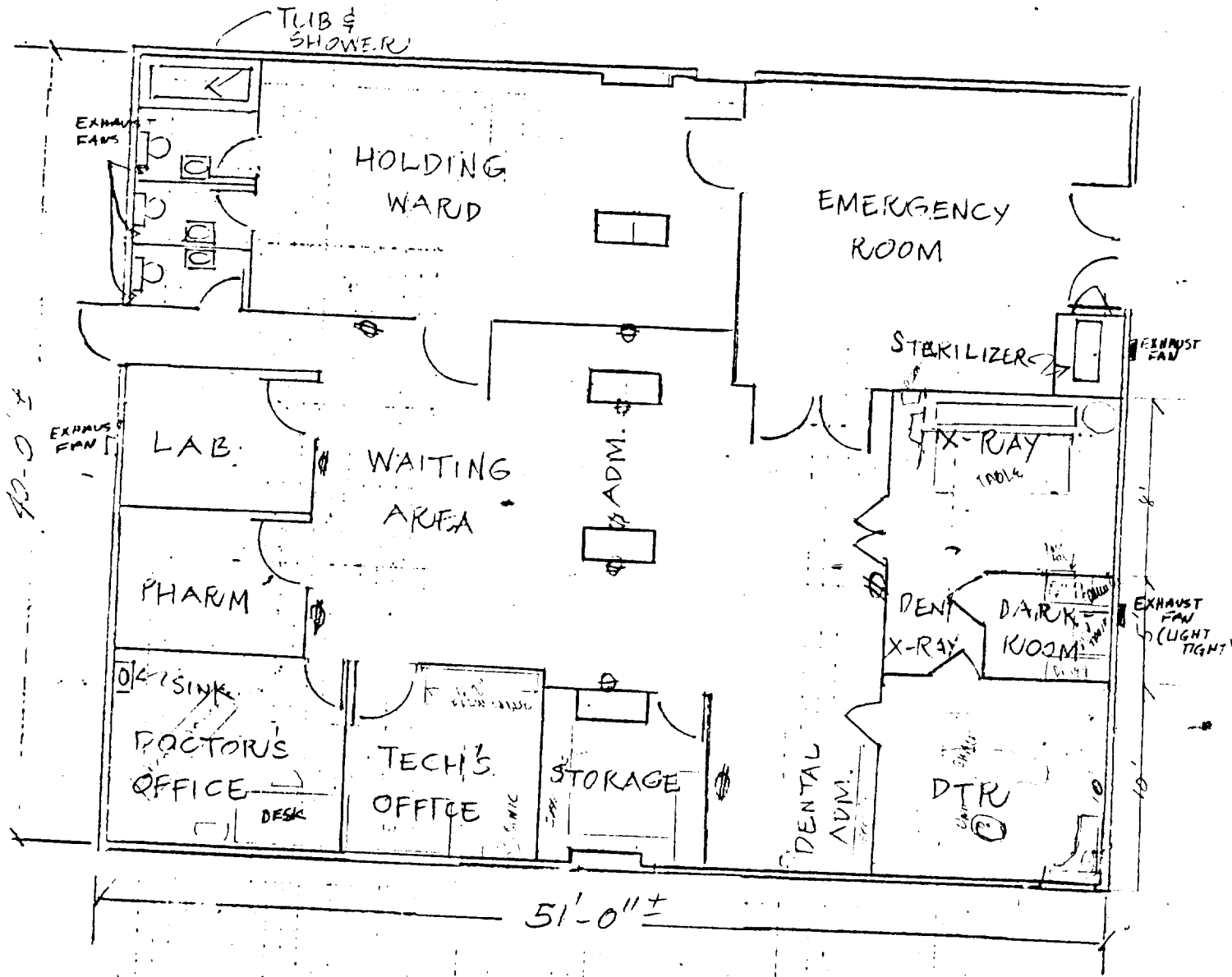
D — Width

F — Length

*For height without skid deduct 3½"

**Physical Dimensions
Belt-Drive Compresso-Dri's**

Enewetak Clinic - Requirements
for Drs & Tech Office, Pharmacy
Lab, ER, Toilets, 4-Bed Holding
Ward & Storage Area.



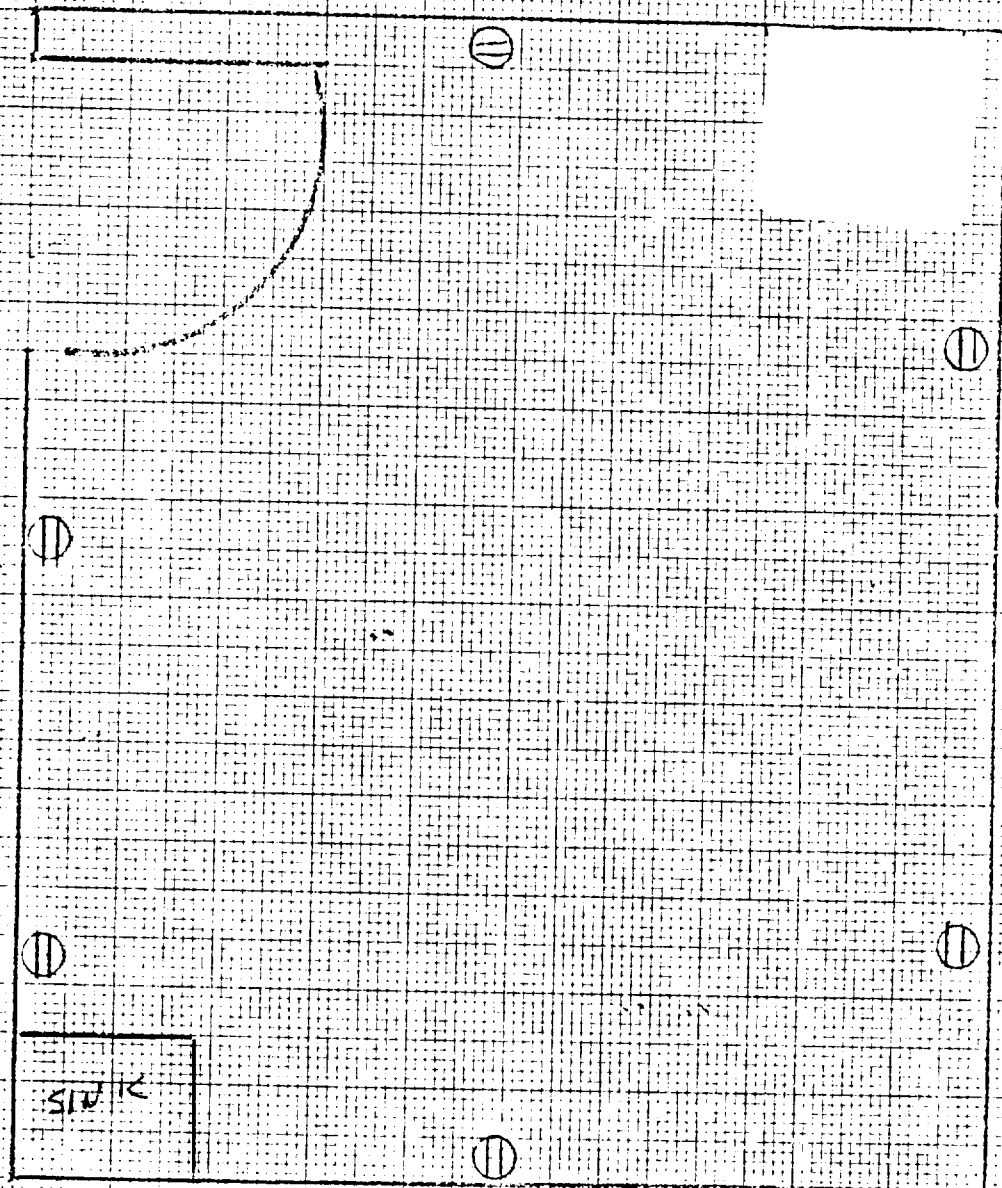
BLDG. 603
PORTION PROPOSED
FOR DISPENSARY
SCALE: 1/8" = 1'0"

ATCH #5

(24)

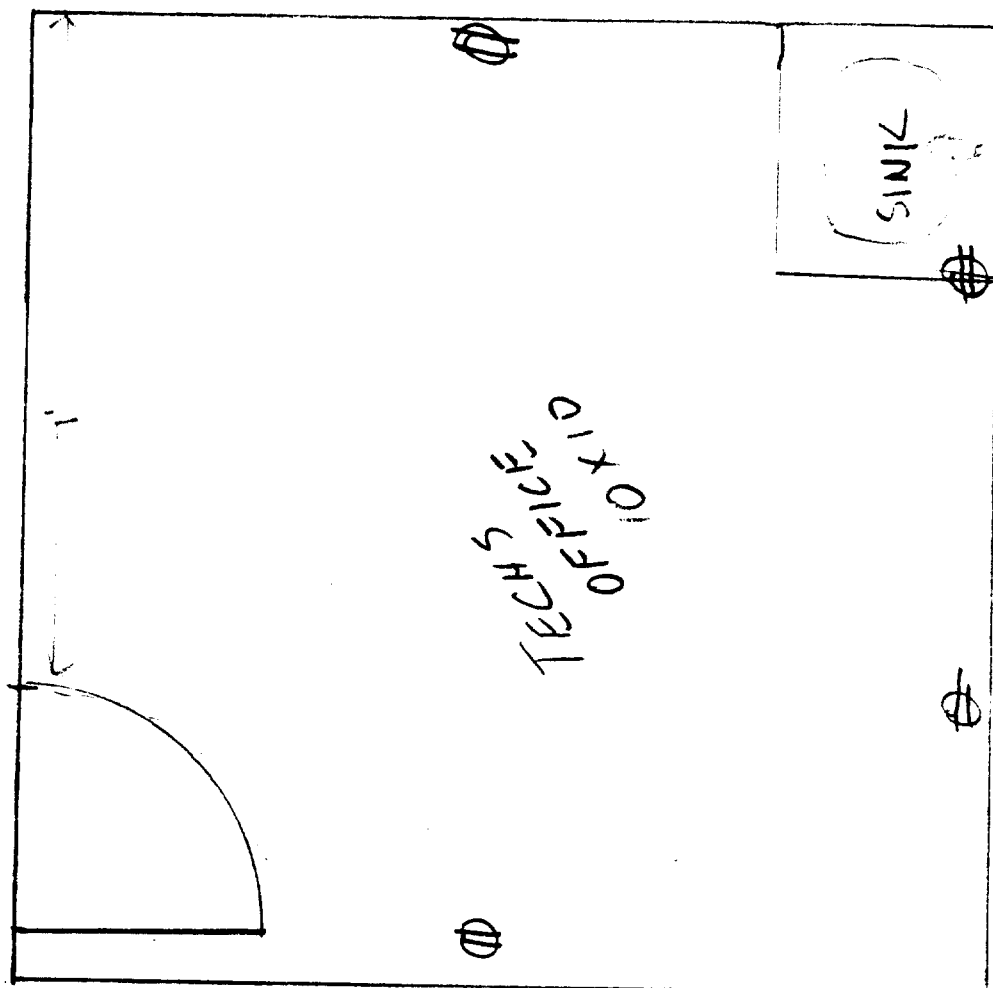
MADE IN U.S.A.

CROSS SECTION - 10X10 TO 1 INCH

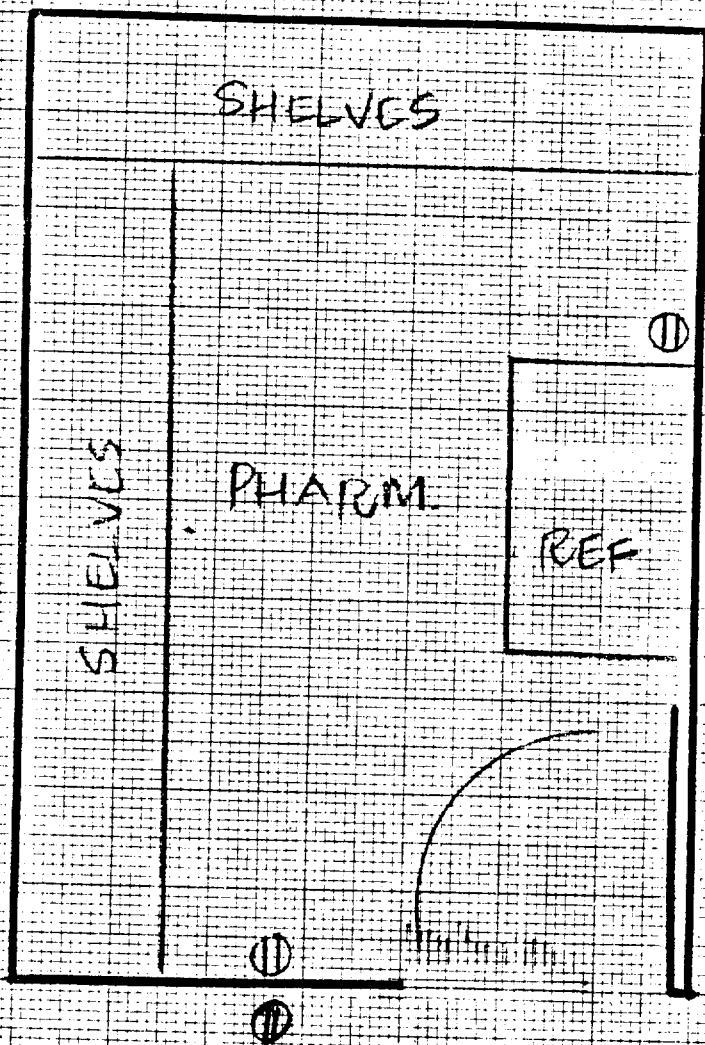


10 FT
DOCTOR'S OFFICE
(ENEWETAK)
SCALE: $\frac{1}{2}'' = 1'0''$

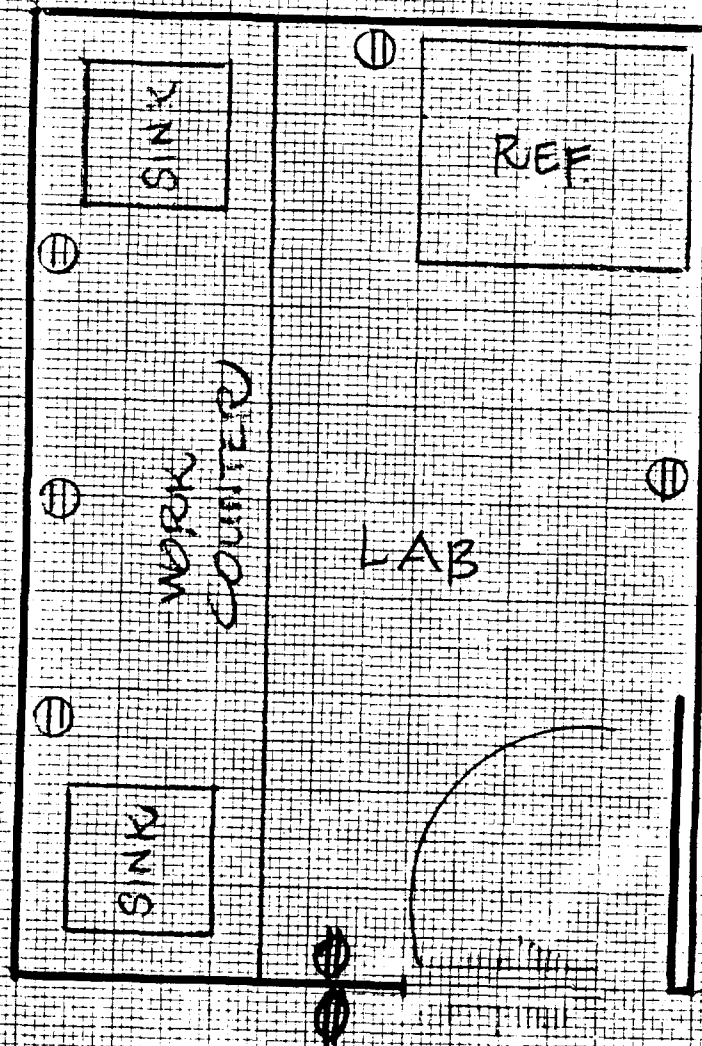
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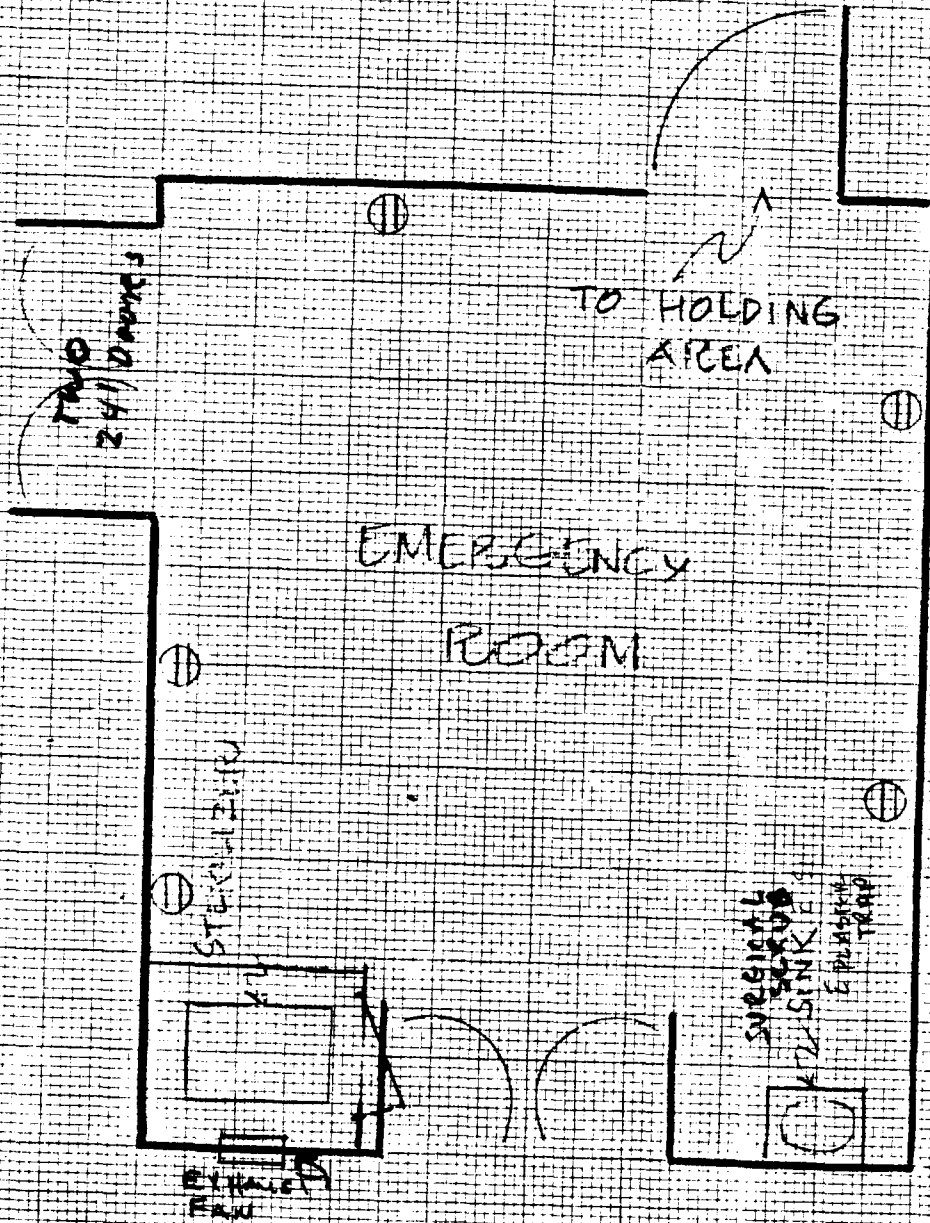
TECH'S OFFICE
SCALE $\frac{1}{2}'' = 1'0''$



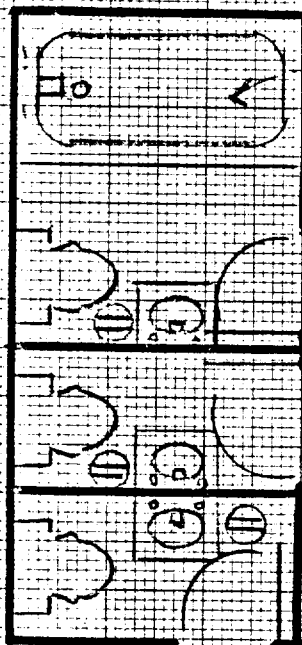
ENEWETAK DISPENSARY
PHARMACY
SCALE: $\frac{1}{2}" = 10'$



ENEWETAK DISPENSARY
LABORATORY
SCALE: $\frac{1}{2}'' = 10''$



ENEWETAIN DISPENSARY
EMERGENCY ROOM
SCALE: 1/4" = 1'0"

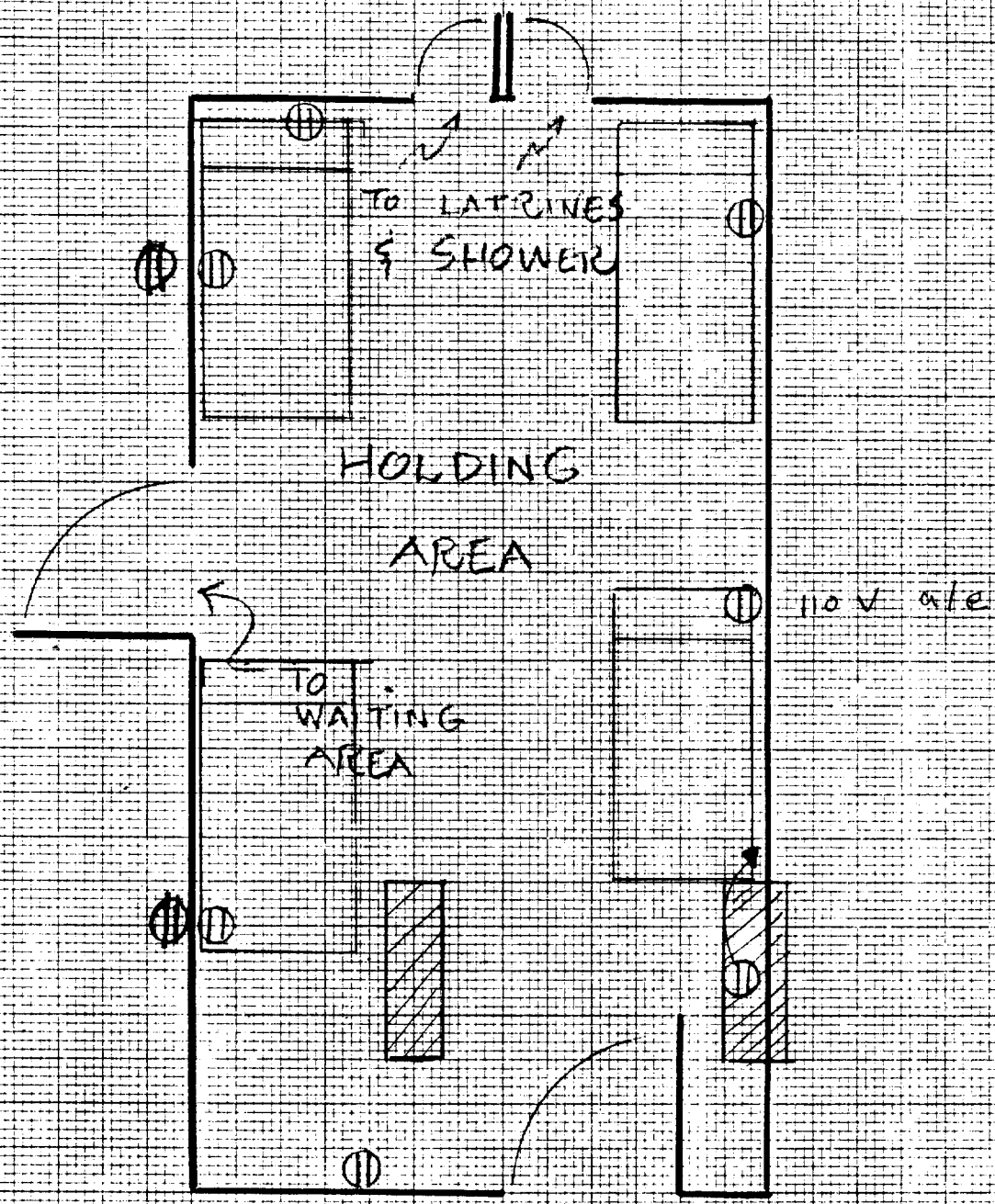


TUB & SHOWER

ENEWETAK DISPENSARY
TOILETS
SCALE: 1/4" = 1'0"

CROSS SECTION - 10X10 TO 1 INCH

CROSS SECTION - 10X10 TO 1 INCH



ENEWETAK DISPENSARY
USED HOLDING WARD
SCALE: $\frac{1}{4}'' = 10''$

